MITSUBISHI ELECTRIC

Air-conditioner Control System

Centralized Controller
Model: GB-24A

Instruction Book
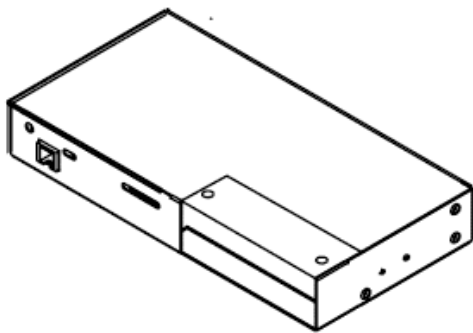
Contents

Before using the controller, please read this Instruction Book carefully to ensure correct operation. Retain this manual for future reference.

This manual describes how to operate the centralized controller. Before using the controller, read the 1 Safety Precautions section carefully to ensure proper installation.

1 | Safety Precautions

Safety precautions are provided for your protection and to prevent damage to the controller.
The safety precautions apply to all operators and service personnel.

Safety symbols used in this manual
The following symbols are used in this manual to indicate the type and severity of potential consequences that may result when given instructions are not followed exactly as stated.

⚠ WARNING	Indicates a risk of death or serious injury.
⚠ CAUTION	Indicates a risk of injury or damage to the controller.

Retain the Installation Manual and the Instruction Book for future reference. Make sure both the Installation Manual and the Instruction Book are given to any future air condition system users.

⚠ WARNING

The controller must be professionally installed.
Improper installation by an unqualified person may result in electric shock or fire.

Make sure the controller is securely mounted so that it will not fall.

To avoid causing damage or fire, do not apply an AC voltage or a voltage higher than 30VDC to the M-NET terminal blocks on the controller.

Never remove the cover during operation.
Touching the charged parts of the controller may cause severe burns or other personal injury.

If any abnormality is noticed (e.g., burning smell), stop the operation, turn off the power supply, and contact your dealer or technical representative immediately.
Continuing the operation may result in damage to the controller, electric shock, or fire.

Ask your dealer or an authorized technician to move the controller.
Improper installation may result in electric shock or fire or damage to the controller.

Controllers must be disposed of properly.
Contact your dealer for proper disposal procedures.

Do not attempt to modify or repair the controller.
Modification or improper repair may result in electric shock or fire.
Consult your dealer when repairs are necessary.

Stop the operation immediately and notify your dealer if an error code is displayed and the controller does not operate, or when any abnormality is noticed.
Continuing the operation may result in damage to the controller or fire.

⚠ CAUTION

Do not install the controller where there is a risk of leaking flammable gas.
If the leaked gas accumulates around the controller, it may ignite and cause an explosion.

Do not wash the unit with water.
Doing so may cause an electric shock or malfunction.

When installing the controller in a hospital or communication facility, take appropriate measures to reduce electrical noise interference.
Inverter equipment, generators, high-frequency medical equipment, or radio communication equipment may interfere with the normal operation of the controller; or the electrical noise from the controller may interfere with the medical practice or cause image distortion and static.

Operate the controller within the temperature range specification.
The use of controller outside of its specification may result in serious damage to the controller. Be sure to check the temperature range specification in the Instruction Book.

Do not spray insect sprays or sprays with flammable propellants to the controller.
To avoid the risk of fire or explosion, do not place flammable sprays near the controller or spray them directly on the controller.

To reduce the risk of electric shock, **install and wire the unit with the power to the PAC-SC50/51KUA power supply unit turned off**.

Do not use the controller in an environment high in oil, steam, or sulfuric gas.
These substances may have adverse effects on the performance of the controller or damage its parts.

Do not install this controller where an acid or alkaline solution or special chemical spray is used frequently to avoid electric shock or malfunction.

Do not install this controller in a place that has the potential for steam or dew formation.
Steam or dew formation may cause an electric shock or a unit malfunction.

Do not touch the PCB (Printed Circuit Board) with your hand or a tool.
Keep the PCB dust-free to prevent fire or malfunction.

Do not use the controller for specialized applications.
This product is designed exclusively for use with the MITSUBISHI ELECTRIC building air conditioning control system. The use of this product with other air-conditioning management systems or for other purposes may result in malfunctions.

Use a security device such as a VPN router when connecting the GB-24A to the Internet to prevent unauthorized access.
If no security devices are installed, the operation settings may be changed by an unauthorized person without the knowledge of the user.

IMPORTANT

Enable the "Automatic restoration after power failure" function on the air conditioning units.
Otherwise, the hold function will prohibit the schedule from being executed, and the units will remain stopped even after power is restored. Enable this function for the units to automatically resume their operation after power is restored.

2 | Introduction

2-1. About this manual

This manual covers the settings that can be made or functions that can be displayed only on the GB-24A.

2-2. Monitoring and operating the air conditioners

To monitor and operate the air conditioners, "GB-24A License Pack" license must be purchased. Purchase the license from the dealer, and register on the Initial Setting Web or on the Web for Monitor and Operation.
Refer to Web Browser Operation Manual for monitoring and operating the air conditioners.

The format in which the Web page address for each GB-24A is expressed on the Web browser, as well as the default user name and password are shown below.

http://[IP address of the GB-24A]/administrator.html

Note: For example, type http://192.168.1.1/administrator.html if the GB-24A IP address is [192.168.1.1].

User	Default user name	Default password
Managers	administrator	admin

Notes

- After registering "GB-24A License Pack" Web Monitor," "Annual Schedule," "Weekly Schedule," "Sending Error Mail," and "Maintenance Tool Advanced" functions will be available.
- Consult the dealer for information on other functions that require a license (i.e. "Maintenance Tool (Simple)").
- Ask the dealer for the Web Browser Operation manual, which covers monitoring and operating the air conditioners.
- Initial settings, such as making group changes, are covered in the Initial Setting Web manual.
  The format in which the Web page address for each GB-24A is expressed on the Web browser, as well as the default user name and password are shown below.

  http://[IP address of the GB-24A]/g-50/administrator.html

  Note: For example, type "http://192.168.1.1/g-50/administrator.html" if the GB-24A IP address is [192.168.1.1].

User	Default user name	Default password
Maintenance user	initial	init

- It is assumed that the GB-24A will be used on a private network. If connecting the GB-24A to the Internet, use a security device such as a router with a VPN function to ensure security.

Notes
- Refer to the WEB Browser Operation Manual for operating the GB-24A.
- Use the initial setting web to make initial settings via LAN.

3-1. Specifications

Table 3-1. Specifications

Item	Specifications	
Interface	M-NET: 30V DC/24V DC;0.13/0.15A LAN: Ethernet 10Base-T Input/output: 12V DC or 24V DC, (External power supply)	
Environmental condition	Temperature	Operating range: 32 to 104ºF / 0 to 40ºC Storage range: -4 to +140ºF / -20 to +60ºC
	Humidity	30~90%RH (No condensation)
Dimensions	$5^1/_8$ (H) × $9^7/_8$ (W) × $1^1/_2$ (D)in／130 (H) × 250 (W) × 38 (D) mm	
Weight	$2^1/_2$ lb／1.1kg	
Installation Environment	In control panel box (indoor) Install this product indoors. *This unit is installed and used in a business office, homes or equivalent environment.	

Number of control units	Indoor units, independent OA processing units or LOSSNAY
	         : 24 units maximum (24 groups maximum)
	Number of units (indoor, independent OA processing, or LOSSNAY) in one group
	         : 1-16 units
	   *Note: Indoor units, independent OA processing units, and LOSSNAY can not register to the same group.
	Number of remote controllers in one group
	         : 1-2
	Number of system controllers in one group
	         : 0-4 (including the number of remote controller in one group)
	         : 0-3 for groups which have one remote controller.
	Number of indoor units interlocked with one OA processing unit or LOSSNAY
	         : 0-16 (some types of OA processing unit can only be operated when interlocked to a maximum of 9 units)	

3-2. Function list

GB-24A requires a license registration. By registering the license, group or block operation via the Web browser will be permitted. License registration that permits various functions can be completed on the license registration page.

Table 3-2. Web monitoring functions

Item	Content
Start/stop	Switching start/stop collectively or for each group
Operation mode	Switching cool/dry/fan/auto/heat/setback collectively or for each group
Temperature setting	Setting room temperature collectively or for each group Set temperature range Cool/dry: 67ºF-87ºF /19ºC-30ºC Heat: 63ºF-83ºF /17ºC-28ºC Auto: 67ºF-83ºF /19ºC-28ºC Setback: Upper limit: 67ºF-87ºF /19ºC-30ºC Lower limit: 53ºF-79ºF /12ºC-26ºC *Note: Preset temperature range varies on different models.
Air velocity	Switching air velocity in four steps collectively or for each group.
Air direction	Switching in four steps vertically and for swing, keep for each group (Selectable air direction depends on the indoor unit model)
Start/stop of interlocked equipment (Lossnay)	Switching start (Hi/Lo)/stop collectively or for each group when connecting with interlocked equipment (Lossnay). (However, ventilation mode can not be selected for the interlocked equipment.)
Prohibition of local control	Selecting the items for which local control is prohibited collectively or for each group. (Items include start/stop, operation mode, temperature setting and filter sign.)
Hold	Prohibits the scheduled operation from being executed.
Error display	Identifies the unit and displays the error.
Filter sign display and reset	Filter sign display can be reset in each group or collectively.
Malfunction history	Malfunction history can be check up to 64 contents in both unit and communication error.
Annual/weekly schedule	Using the annual/weekly schedule function by license registration.
Malfunction e-mail history	E-mail history can be check up to 64 contents.

* The above specification may be changed depending on the equipment connected or combined.
* The block setting and the registration of block/group names require the initial setting web.
* Without prior notice, the content may be changed.

The table below the types of connectable units. Depending on the model and type, not all functions may be available.

Model	Notes
CITY MULTI	
LOSSNAY	
Mr. Slim	Requires a M-NET adapter
Room air conditioner	

3-3. Setting Functions

Perform initial settings with the Initial Setting Web.

Table 3-3. Initial-setting functions

Item	GB-24A	Initial Setting Web	Remarks
M-NET address setting		√	The default value is 0.
IP address setting	√ (Simple setting)	√	Simple settings have priority over other settings.
Function selection		√	Presence/absence of K transmission converter Connection*1, local operation prohibition setting, and external input mode
Group registration		√	
Registering interlocked operation with the Lossnay unit		√	
Switch for start-up mode	√		
Other settings		√	

*1: K transmission converter cannot be used. Select "Not used" for the K-control Units setting in the M-NET Settings window.

1) How to set the IP address with dip switches

IP addresses between 192.168.1.1 and 15 can be set using the 4-pin dip switch on SW2.
Set this switch before turning the power on.

(Inside the cover)

SW 2

ON
OFF
1 2 3 4
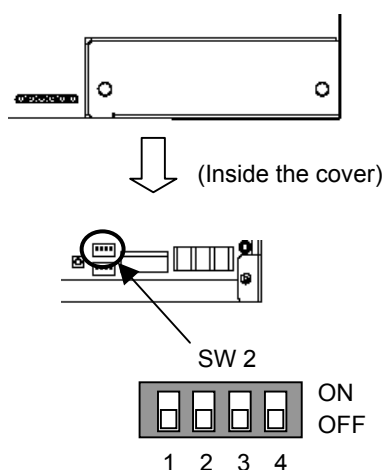
| 1	2	3	4	Contents (IP address)
OFF	OFF	OFF	OFF	Address that is set with Initial Setting Web. (Initial IP address setting is 192.168.1.1)
OFF	OFF	OFF	ON	Starts from 192.168.1.1
OFF	OFF	ON	OFF	Starts from 192.168.1.2
OFF	OFF	ON	ON	Starts from 192.168.1.3
OFF	ON	OFF	OFF	Starts from 192.168.1.4
OFF	ON	OFF	ON	Starts from 192.168.1.5
OFF	ON	ON	OFF	Starts from 192.168.1.6
OFF	ON	ON	ON	Starts from 192.168.1.7
ON	OFF	OFF	OFF	Starts from 192.168.1.8
ON	OFF	OFF	ON	Starts from 192.168.1.9
ON	OFF	ON	OFF	Starts from 192.168.1.10
ON	OFF	ON	ON	Starts from 192.168.1.11
ON	ON	OFF	OFF	Starts from 192.168.1.12
ON	ON	OFF	ON	Starts from 192.168.1.13
ON	ON	ON	OFF	Starts from 192.168.1.14
ON	ON	ON	ON	Starts from 192.168.1.15

Note
● When setting IP addresses with the Initial Setting Web, set all four dip switches on SW2 to OFF.

Notes

● When 15 or fewer GB-24A units are used in the air-conditioning network for, set the IP address via SW2 on the unit.

● If the set IP address of GB-24A is forgotten, check the IP address that is registered on the monitoring PC (WEB). GB-24A can be started by changing the setting of SW2 on GB-24A and using an arbitrary fixed IP address as a temporary IP address. It is recommended to paste a sticker with the IP address on the unit, so that the IP address of GB-24A is available at all times. Once GB-24A is started up with a temporary IP address, a new IP address can be assigned to it on the Initial Setting Web.

2) Setting the service switch

The switches must be OFF for normal use. The switch setting change operates when the power is turned on next time.

SW 1

ON
OFF
1 2 3 4
Not to be used
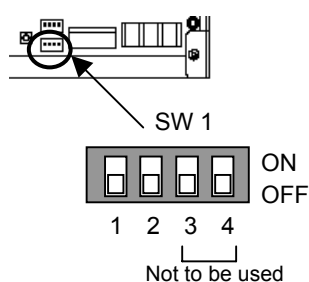
1	2	Contents	Remarks
OFF	OFF	Starts with the normal mode	*This setting is for normal use.
ON	OFF	-	Setting is prohibited.
OFF	ON	-	Setting is prohibited.
ON	ON	Starts with the update mode	*The software can be updated with the normal mode. If the update fails, or the software does not work properly use this setting to update the software again.

*SW1-3 and SW1-4 are always OFF.

3-4. Service LED display

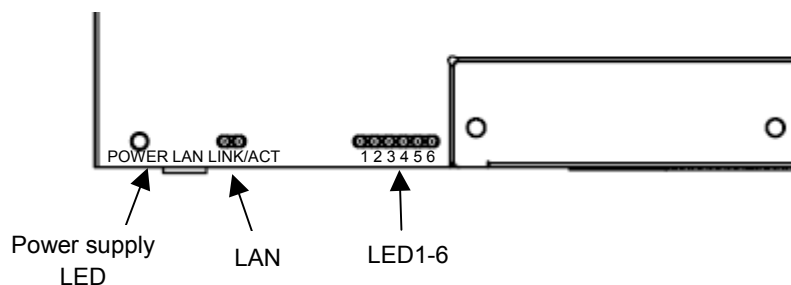The LED displays the operation status of the unit as follows.

POWER LAN LINK/ACT   1 2 3 4 5 6

Power supply
LED   LAN   LED1-6

Table 3-4   List of services LED

LED No.	Items	Contents	
Power supply LED	Power status	ON : Power is supplied	/ OFF: Power is cut off
LAN	LAN LINK	ON : During LINK	/ OFF: No LINK
LAN	LAN ACT	Flash : During communication	/ OFF: No communication
LED1	Start-up	ON : Start-up not completed	/ OFF: Start-up completed
LED2	Operation ON/OFF	ON : 1 or more units are ON	/ OFF: All OFF
LED3	Error	Flash : Error occurred on 1 or more units	/ OFF: Normal state
LED4	(not defined)	-	
LED5	(not defined)	-	
LED6	M-NET communication (transmission)	Flash : During communication	/ OFF: No communication

4   External input/output functions

*External signal input requires the external I/O adapter (Model: PAC-YG10HA), sold separately.

4-1. External input function

(1) The function of external input

- Emergency stop/normal operation, ON/OFF, local remote control prohibit/permit can be controlled for conditioners on a system with a non-voltage contact signal input from an external input source. (the dip switches)
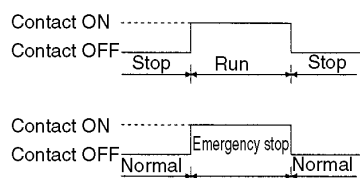- The condition of external input signal is displayed on the operation setting screen for each group.

Table 4-1. Function settings of external input

No.	External signal input function	Remarks
1	Do not use external input signal (factory setting)	
2	Execute emergency stop/normal with level signal	The local remote controller ON/OFF operations, and the controller ON/OFF operation and prohibit/enable change operations will be prohibited during emergency stop.
3	Perform ON/OFF with level signal	The local remote controller ON/OFF operations, and the controller ON/OFF operations and prohibit/enable change operations will be prohibited.
4	Perform ON/OFF, prohibit/enable with pulse signals	Set the pulse width while the contact is ON to 0.5 to 1 sec.

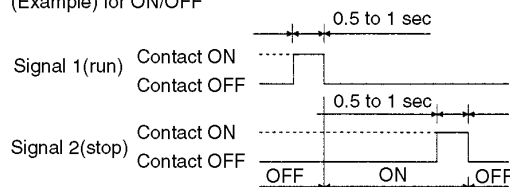*Settings for these functions can be set with the Initial Setting Web.

(2) Level signal and pulse signal

(A) Level signal

Contact ON
Contact OFF
Stop   Run   Stop

Contact ON
Contact OFF
Normal   Emergency stop   Normal

(B) Pulse signal
(Example) for ON/OFF

0.5 to 1 sec

Signal 1(run)   Contact ON
     Contact OFF

0.5 to 1 sec

Signal 2(stop)   Contact ON
     Contact OFF

OFF   ON   OFF

*The prohibit/enable input is the same.

(3) External input specification

CN2	Lead wire	Emergency stop/normal level signal	ON/OFF, level signal	ON/OFF, prohibit/enable pulse signal
No. 5	Orange	Emergency stop/normal input	ON/OFF input	ON input
No. 6	Yellow	Not used	Not used	OFF input
No. 7	Blue	Not used	Not used	Local remote controller operation prohibit input
No. 8	Gray	Not used	Not used	Local remote controller operation enable input
No. 9	Red	External DC source "+" "12V DC" or "24V DC"		

(A) For level signal
1. When the emergency stop/normal signal is selected, the status will change from normal to emergency stop when the external input signal contact changes from OFF to ON, and will change from emergency stop to normal when the contact changes from ON to OFF. Emergency stop signal will bring the air conditioners to stop, and canceling the emergency stop will not automatically reset these units. To return to the previous operation status, they must be manually turned back on.
2. When the ON/OFF signal is selected, the status will change from OFF to ON when the external input signal contact changes from OFF to ON, and will change from ON to OFF when the contact changes from ON to OFF.

(B) For pulse signal
1. Even if the ON signal is input during ON, the status will remain ON.
2. If the local remote controller is prohibited, the ON/OFF operation mode and temperature setting operations by the local remote controller will be prohibited.
3. Set the pulse width (contact ON time) to 0.5 to 1 sec.

4-2. External output function
(1) The function of external output
●The "ON" signal is output when one or more air conditioner are in the ON operation.
●The "Malfunction" signal is output when one or more air conditioner malfunctions.

(2) External output specifications

CN2	Lead wire	Description of each terminal
No. 1	Green	Common (External ground)
No. 2	Black	ON/OFF
No. 3	Brown	Malfunction/normal

1. "ON" signal and "Malfunction" signal will both be shown.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide resonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no quarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

Please be sure to put the contact address/telephone number on
this manual before handing it to the customer.